Southern Wisconsin Forest Health Update

Wisconsin DNR, Forest Health Protection Unit
September 9th, 2016 Vol. 13 No. 3

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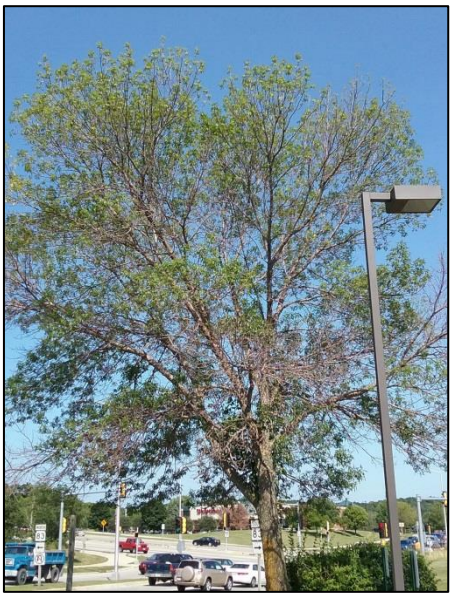
Articles in this newsletter were written by Mark Guthmiller, Regional Forest Health Specialist, unless otherwise noted.

Emerald Ash Borer– Bill McNee

Canopy thinning of EAB-infested trees continues to be seen across large parts of southern Wisconsin. If you see this canopy thinning with smaller, pale leaves, visit Wisconsin's Emerald Ash Borer website to see if the pest has not yet been detected in that community or county. Suspected new infestations can be reported to Mark Guthmiller or Bill McNee using the contact information at the end of this pest update. Adult EAB beetles have finished their annual flight in southern Wisconsin, and the only life stages present will be larvae.



Thinning canopy of an EAB-infested tree in Delafield, July 2016. Photo by Bill McNee, WI DNR.

New village or city detections in southern Wisconsin since the last pest update are:

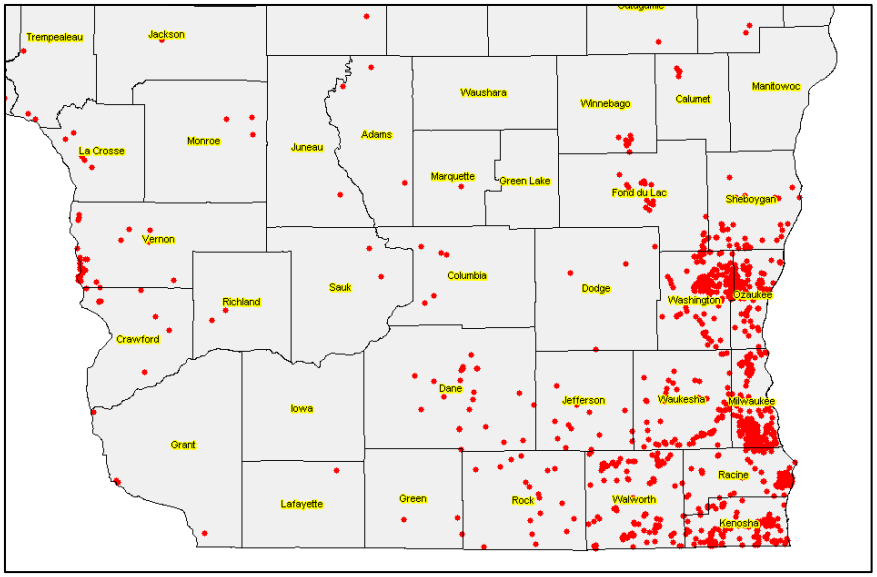
- Dodge Co. – Mayville
- Jefferson Co. – Jefferson
- Sheboygan Co. – Glenbeulah , Plymouth and Sheboygan Falls
- Washington Co. – Kewaskum
- Waukesha Co. – Delafield, North Prairie and Wales
- Winnebago Co. – Oshkosh

Other noteworthy detections:

- Sawyer Co. – Town of Radisson (first detection in that county and the third northern Wisconsin county where EAB has been found)
- Brown Co. – De Pere
- Monroe Co. – Tomah
- New Castle County, Delaware – the 28th state to find EAB

A complete list of municipal EAB detections can be found on the Wisconsin Emerald Ash Borer website.

Recent aerial surveys found a continued increase in the area of southeast Wisconsin where dead and thinning ash can be continuously seen from the air. Symptoms of EAB are now fairly continuous in southern Milwaukee County, Racine County, Kenosha County, most of Walworth County and parts of southeast Waukesha County and eastern Rock County. Farther north, the visibly-infested area around Newburg has expanded into additional parts of Ozaukee, Sheboygan and Washington Counties.

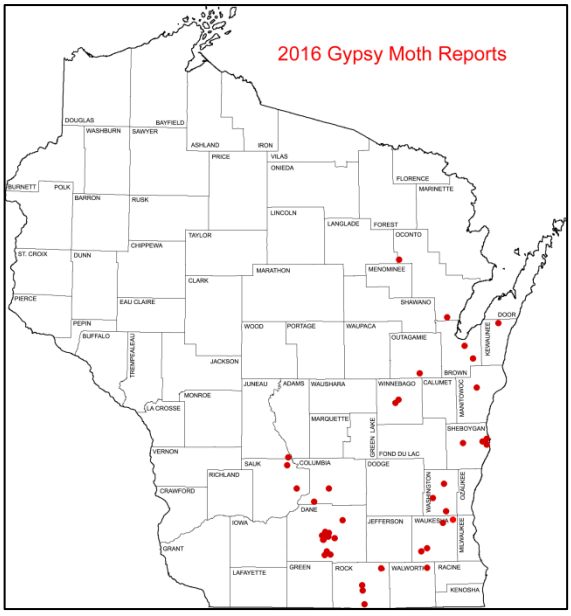


Emerald ash borer detections in southern Wisconsin as of August 2016.

Gypsy Moth– Bill McNee

Gypsy moth adults are now finished flying in southern Wisconsin, and egg mass population surveys can be done in order to predict 2017 infestation levels. For more information about control methods and predicting next year's population size, visit the Wisconsin gypsy moth website.

DNR forest health staff received an increased number of nuisance caterpillar reports compared to 2015, but known defoliation was limited to a handful of individual trees and no defoliation was observed during recent aerial surveys. There were some reports of caterpillars killed



Map of gypsy moth nuisance reports received by DNR forest health staff this summer.

by diseases, but no massive die-off. This summer had near-average precipitation, which means that there would have been average mortality from the Entomophaga fungal disease.

What this means for egg mass numbers this fall is yet to be known, although at present we are predicting that scattered areas will qualify for the DNR gypsy moth suppression program to spray in 2017. DNR will offer the suppression program for the 2016-17 program year, and applications will be due in early December 2016. Aerial applicators can also be hired for privately-organized spraying. More information can be found on the Wisconsin gypsy moth website.

Newly-produced gypsy moth egg mass feels firm when touched. Photo by Bill McNee, WI DNR.

Leaf Scorch – Bill McNee

Late July and August have generated many observations of environmental leaf scorch in numerous hardwood species. Usually due to dry conditions and water stress, signs first appear at the leaf margins and between major veins since this tissue is farthest from the water-containing veins. Bacterial leaf scorch could be an unlikely cause of similar symptoms, but periodic specialized testing of samples may be warranted. Bacterial leaf scorch symptoms tend to get progressively worse over several years, and lab testing should be done if this type of infection is suspected. More information on bacterial leaf scorch can be found at: USDA Forest Service, Northeast Area, Forest Health Protection-Bacterial Leaf Scorch

Environmental scorch on a white oak leaf in Oshkosh. Photo by Bill McNee, WI DNR.

Buckthorn Defoliation – Bill McNee

In mid-August, DNR forestry staff in Sheboygan County found a 12 acre red pine plantation with heavy defoliation of understory buckthorn on the Kettle Moraine State Forest's Northern Unit. The tops of the buckthorn were heavily defoliated above 3-4 feet. The buckthorn is quickly refoliating and is unlikely to suffer any long-term harm.

The responsible species, *Magusa divaricata*, is known as the "Divaricate narrow-wing" moth or the "Orbed narrow-wing" moth. This moth species migrates northward from Central America and the Caribbean in late summer and early fall, as far north as the Upper Midwest and southern Canada. Its hosts are listed as species in the buckthorn family of plants. The same insect was observed defoliating buckthorn in Kenosha County two years ago.

Additional buckthorn defoliation was reported in a red pine plantation in the Town of Kewaskum (Washington County).

Heavy defoliation of buckthorn by *Magusa divaricata* in Sheboygan County. Photo by Bill McNee, WI DNR.

Refoliation of buckthorn following defoliation by *M. divaricata* caterpillars. Photo by Bill McNee, WI DNR.

M.divaricata caterpillar, with head at the right side of photo. Photo by Jake Truitt, WI DNR.

Cherry Scallop Shell Moth Defoliation

WI DNR forester, Nick Koltz, reported an area of approximately 6-7 acres with heavy defoliation caused by the cherry scallop shell moth. In the heaviest impacted areas trees were almost completely defoliated with extensive webbed leaves dropping to the ground. There also was a fine webbing observed all over the trunks of these trees which is suspected to also be from the cherry scallop shell moth, as no other critters were detected that could have made this fine webbing. The population was high enough that it was easy to find pupae at the base of trees in the duff layer.

Cherry scallop shell moth has been more active around Wisconsin in recent years. In 2013 I also observed cherry scallop shell moth at lower numbers in northern Sauk County. Mike Hillstrom reported cherry scallop shell moth activity around Wisconsin Rapids in 2012. Todd Lanigan reported Cherry Scallop Shell Moth in locations in Chippewa and Eau Claire Counties back in 2014 and 2015. Linda Williams reported cherry scallop shell moth damage up in NE Wisconsin in 2013 and 2015 including locations in Marinette, Oconto, and Shawano Counties.




From Left to Right: Stand of black cherry defoliated in southern Jefferson and northern Walworth County; extensive leaf drop from cherry scallop shell webbing and feeding of leaves (inset of black cherry bark covered in fine webbing); characteristic clumped leaves webbed together; pupa found in duff layer.

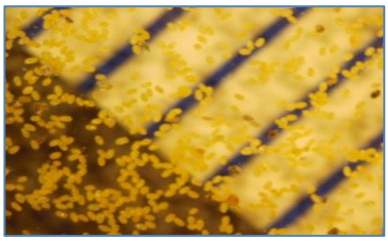
Shagbark Hickory Brooms

I have been reporting on this broom phenomena showing up on shagbark hickory since first being reported in December of 2014 from DNR forester, Nick Koltz, in Rock County. Since then additional sites have been observed with this broom growth including more sites in Rock County, Iowa County, and over the last few weeks in Dane and Sauk County. This issue has my attention due to how common it seems to be showing up. I am encouraging field staff to keep an eye out for this as we move into fall and winter and share reports. With leaf off this winter it should be very easy to observe this in the canopy or on the main trunks. We will be discussing possibly setting up some monitoring plots to observe what long-term impact this issue may be posing to shagbark hickory and what factors may be contributing to this strange growth. For past newsletter articles on this topic visit:

August 2015 newsletter (see page 4 and 5)
December 2015 newsletter (see page 8)
June 2016 newsletter (see page 6)


Pictures from a municipal conservation park in Dane County showing brooms on shagbark hickory. The photo on the right shows the typical brooms where the petioles remains after the blighted leaves drop. These brooms should be easily observed this fall and winter.

Field Assays for Beech Scale Resistance – Scott Schumacher



Top: minute beech scale eggs collected from heavily infested trees; Bottom: sorted eggs were placed on potentially resistant/tolerant beech trees for an artificial challenge assay.

Beech scales are part of an insect and fungal disease complex referred to as beech bark disease, a devastating disease that can have great impacts on this resource. The beech scale has been found in low populations throughout most of the Wisconsin range of beech. Beech scale is confirmed in eleven counties (Dodge, Door, Forest, Kewaunee, Marinette, Manitowoc, Menominee, Oconto, Ozaukee, Sheboygan and Washington). Beech bark disease has been causing damage in many parts of northeastern U.S. and parts of neighboring Michigan. Here in Wisconsin, beech bark disease and high populations of beech scale have only been found in Door County to date.

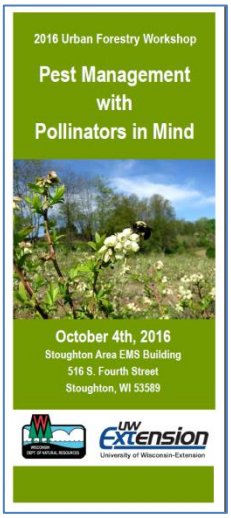
In early August, Scott Schumacher, Bill Ruff, Linda Williams, and Bill McNee all met to collect beech scale eggs at Whitefish Dunes State Park from heavily infested trees. The scale, scale eggs, and wax were all brushed off together into a gallon Ziploc bag, then brought back to the Forest Health Lab in a cooler for future sorting of the eggs. The eggs were isolated from all other collected material by sifting through a 250 micron nylon mesh sieve.

About a week later, the sorted eggs were then used for an artificial challenge assay using potentially resistant/tolerant beech trees in Door County where the beech scale infestation was confirmed for the first time in Wisconsin in 2009. These trees had been previously identified in the field as potentially resistant/tolerant to beech scale based on visibly lower levels of scale infestation compared to adjacent trees. On two sides of each tree in the assay we placed approximately 500 eggs on a foam pad; they were then topped with sealed house wrap (Tyvek or the like) and wrapped with galvanized wire to keep in place and create a waterproof seal. This process was completed for 3 potentially resistant/tolerant trees and 3 susceptible trees (for control).

After about a year, data will be collected on the number of established adults, nymphs, and eggs that may occur under each sealed pad. This technique is useful to assess parent performance as part of a breeding program to create progeny that may be more scale resistant.

For more information on beech scale and beech bark disease visit:
http://dnr.wi.gov/topic/foresthealth/beechbarkdisease.html

Miscellaneous Topics and Observations



2016 Urban Forestry Workshop: Pest Management with Pollinators in Mind
On Tuesday, October 4th, 2016 the WI DNR Urban Forestry program and UW Extension are offering a workshop on pest management with emphasis on related pollinator concerns. For more information visit: UW Extension Urban Forestry Program Brochure

European Elm Scale
Sample branches were submitted earlier this summer from a municipality in Sauk County with this non-native European elm scale. Scale populations appeared high enough to be causing some localized damage to twigs and branches. Twigs and branches can also be covered with black sooty mold growing on "honeydew" excreted by this scale. Typically, branch foliage would turn yellow and there would be premature leaf drop. In the sample submitted, foliage was showing inter-veinal necrosis. It is possible this inter-veinal necrosis is not related directly to scale feeding impacts. Interestingly, when the scales were examined under the microscope, the internal body was full of what appeared to be some kind of fungal spores, possibly an entomopathogenic fungus. It will be interesting to see if this suspect fungus reduces scale populations going into next season. I would be curious if others observe this critter on elms. For more information on this scale visit: European Elm Scale, IPM of Midwest Landscapes



Left to Right: Adult European elm scale; branch with numerous scales; elm leaf with interveinal necrosis although uncertain if related to scale feeding damage.

Bark Beetle of Hickory, suspect *Chramesus hicoriae*

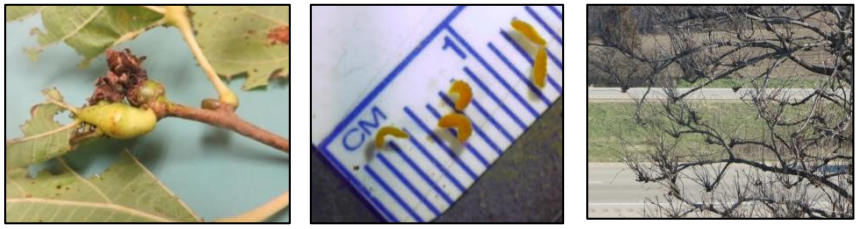
Kyoko Scanlon observed some small insect exit holes while investigating a sample from a Rock County shagbark hickory broom (see article above). The beetle appears to be a small bark beetle that is suspected to be *Charmesus hicoriae.* Apparently this critter can be found on hickory and hackberry and is document throughout the eastern half of the U.S. I suspect it is mainly a secondary insect attacking the small branches of these brooms and likely not playing a role in the formation of these brooms.

Top clockwise: shagbark hickory broom; broom twig with beetle galleries; suspect *Chramesus hicoriae* beetle; very small beetle just a little over one mm. in length.

Basswood Bud Galls

This past winter a few basswood trees at a rest area in Jefferson County were exhibiting broom-like growth prompting this to be a phytoplasma sampling site. While sampling these trees this summer, I came across this gall forming midge. I suspect this is *Contarinia citrina* or a similar midge. I am not certain if this is the main cause to the broom-like growth or if phytoplasma could possibly be playing a role. Watch for phytoplasma sampling test results in a future newsletter.

Left to Right: Newly forming gall on basswood; suspect larvae of *Contarinia citrina*; basswood brooms on sampled tree.



Noxious Oak Gall on Swamp White Oaks

A number of swamp white oak trees in a municipal park in Lafayette County were exhibiting noxious oak galls, caused by the cynipid wasp, *Neuroterus noxiosus*. The galls were causing distorted, stunted and dried shriveled leaves making the trees unsightly.

"Obnoxious" looking noxious oak galls that formed on a swamp white oak

Fall Webworm and Brown Marmorated Stink Bug Look- A-like

I was out nosing around a fall webworm nest in Columbia County earlier this summer, and as is my habit, I tore open the webbed nest to check out the caterpillars. After doing so, I had this stink bug appear on my hand. It got me a bit excited as I thought it might be a brown marmorated stink bug. I sent this picture to UW Extension entomologist, P.J. Liesch, who was able to help rule out the brown marmorated stink bug. There are a number of native stink bugs that somewhat resemble the brown marmorated stink bug. P.J. suspects this one is likely a predatory stink bug in the genus *Podisus*. The stink bug, *Podisus placidus*, is a listed predator of the fall webworm so this is the likely critter.

Left to Right: Fall webworm tent; fall webworm caterpillars spared from stink bug attack; suspect stink bug *Podisus placidus* or similar predator stink bug.

Suspect Everlasting Pea (*Lathyrus latifolius*)

While conducting some surveys at the WI DNR Avoca State Wildlife Area in Iowa County, I came across this low growing trailing vine plant that I had not seen before. I believe this is the everlasting pea, *Lathyrus latifolius*. It has a very interesting flattened or winged stem and petioles with a typical pea-like flower. This was growing out in the open prairie area next to the woodland. It created a dense mat growing over other plants making it very difficult to walk through. It apparently has been used for erosion control and sold as ground cover or ornamental climbing vines. I did not find it listed as an NR40 species but it can apparently get weedy. Controls include hand pulling, prescribed burns, or foliar herbicide sprays. For more information on the everlasting pea visit: http://dnr.wi.gov/topic/Invasives/fact/EverlastingPea.html

Arrow points to the flattened or winged stem of suspect everlasting pea.

SOD Forest Health Assistance
Wisconsin DNR, Forest Health Protection Unit
September 2016

Contacts for DNR staff, municipal foresters, and forestry cooperators

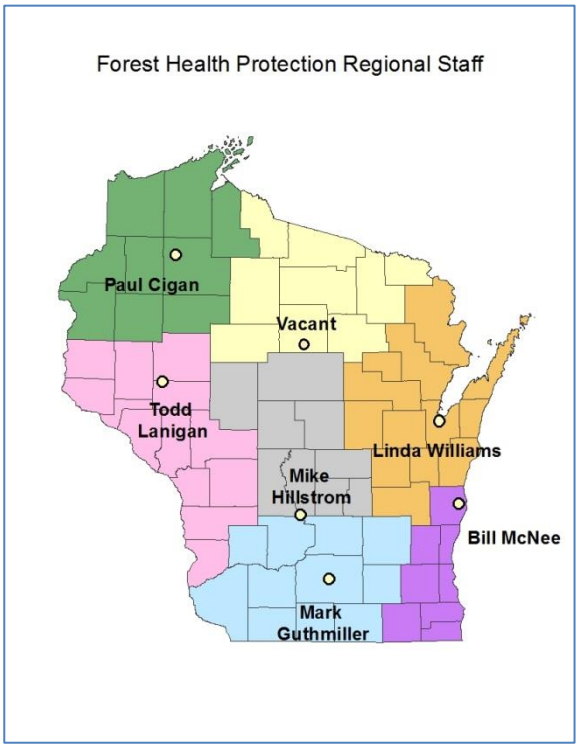
Mark Guthmiller Forest Health Specialist Wisconsin DNR 3911 Fish Hatchery Road Fitchburg, WI 53711 Phone: (608) 275-3223 Email: Mark.Guthmiller@wisconsin.gov **Columbia, Dane, Dodge, Grant, Green, Iowa, Jefferson, Lafayette, Richland, Rock, and Sauk**	Bill McNee Forest Health Specialist Wisconsin DNR 1155 Pilgrim Rd. Plymouth, WI 53073 Phone: 920-893-8543 Email: Bill.McNee@wisconsin.gov **Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Walworth, Washington, and Waukesha**

For a statewide forest health staff list:
http://dnr.wi.gov/topic/ForestHealth/staff.html

Additional Program Web-based Resources:
WI DNR Forest Health web site:
http://dnr.wi.gov/topic/ForestHealth/

Report Emerald Ash Borer in Unconfirmed Counties:
by phone 1-800-462-2803
by email:
DATCPEmeraldAshBorer@wisconsin.gov
visit the website: http://emeraldashborer.wi.gov

Report Gypsy Moth:
by phone at 1-800-642-6684
by email: dnrfrgypsymoth@wisconsin.gov
visit the website: http://gypsymoth.wi.gov
(It is also recommended to report gypsy moth to your local government)



Please direct public inquiries regarding yard tree concerns to UW county or state extension offices: http://www.uwex.edu/ces/cty/

[Pesticide use: Pesticide recommendations contained in this newsletter are provided only as a guide. You, the applicator, are responsible for using pesticides according to the manufacturer's current label directions. Read and follow label directions and be aware of any state or local laws regarding pesticide use.]